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Transitions of a tethered chain under tension JUTTA LUETTNER-STRATHMANN, University of Akron, WOLFGANG PAUL, KURT BINDER, Johannes Gutenberg Universität Mainz — An applied tension changes the equilibrium conformations of a tethered polymer chain and thus affects both the adsorption transition and the coil globule transition. Conversely, solvent quality and surface attraction are reflected in equilibrium force-extension curves that can be measured in experiments. In this work, we performed Monte Carlo simulations of the bond-fluctuation model with a Wang-Landau algorithm to determine the density of states in the state space of monomer-monomer contacts, monomer-surface contacts, and chain extension. We study the effect of tension on the collapse and adsorption transitions and calculate force-extension curves that may be compared with experimental data.

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